

**REMARKS**

Applicant has amended claims 1-4 and added new claims 5-10 to more particularly and distinctly point out the claimed subject matter, and to round out the coverage to which it is entitled. The amended claims and new claims are supported by the as-filed specification, e.g., at paragraphs [0029], [0043],[0052], [0134], [0141], [0146], and Tables 1-4. No new matter has been introduced.

Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1 and 3 over U.S. Patent No. 6,231,782 to Shimomura et al. ("Shimomura") in view of U.S. Patent No. 6,667,285 to Kawahara et al. ("Kawahara") for at least the following reasons and reasons of record.

**No Reasonable Expectation of Success**

A reasonable expectation of success is required to support a conclusion of obviousness. M. P.E.P. § 2143.02. In order to have a reasonable expectation of success, at least some degree of predictability is required. M.P.E.P. § 2143.02(II).

In response to the Applicant's argument presented at 4-6 of the November 13, 2009 Reply, the Office Action asserted that Tables 6 and 7 of Shimomura are comparing the mixture of hydrocarbon and ester oils as the inventive oils of Shimomura versus complex polyol esters oils used without any other base oils or simply the ester oils, wherein the mixture of hydrocarbon and ester oils has superior properties. Office Action, page 7.

Although the Office Action asserted that Shimomura does not negate the presence of poly ester oils for possibly using as base oils, Shimomura clearly indicates that the use of such polyol ester compounds is undesirable. Indeed, Comparative Examples 16 and 18, in Tables 6 and 7 of Shimomura disclose that compositions

containing polyol esters as base oil, alone or combined with other type of ester oil, result in a less hydrolytic stability - the very motivation that the Office Action seeks to establish the improper prima facie case over Shimomura and Kawahara. Therefore, Shimomura, considered as a whole, does not provide any legitimate reason to include polyol ester as a base oil in a fluid composition for use in a refrigerating machine. The Office Action also does not provide any rationale of why one of ordinary skill in the art would choose polyol ester oils over other oils including a mixture of hydrocarbon and ester oils, which show superior properties than polyol ester oils. Further, Shimomura, by indicating the undesirability of using the recited poly ester oils, presents no predictability that the claimed fluid composition for use in a refrigerating machine would succeed.

The Office Action also asserted that Kawahara provides motivation to references relying on Kawahara at col. 3, lines 16-25. Kawahara, as a whole, including the above-mentioned portion does not provide any reason to use polyol ester oils for improving hydrostability. Kawahara at col. 2, lines 55-59, instead expressly teaches that certain aliphatic branched-chain carboxylic acid monoalkyl esters are excellent in hydrolytic stability and further teaches at col. 3, line 16-23 using such aliphatic saturated branched-chain carboxylic monoalkyl esters to combine with various types of conventional lubricating oils. One of ordinary skill in the art, having considered the teachings of Kawahara, therefore, would be encouraged to use aliphatic saturated branched-chain carboxylic monoalkyl esters, but would not recognize using a polyol ester oil, which Kawahara merely discloses as one of the conventional lubricating oils to improve hydrolytic stability.

Even if the hypothetical combination of Shimomura and Kwahara were made, therefore, one of ordinary skill in the art would have no reasonable expectation of success in achieving a fluidic composition with a high level of hydrolytic stability.

Amended claim 1 also recites, among other things, that “[a] polyol ester is an ester of a diol or polyol and a fatty acid consisting of pentanoic acid, heptanoic acid, and 3,5,5-trimethylhexanoic acid.” Shimomura discloses the above-feature in Base Oil 16 in Comparative Example 16 and 18 and teaches its inferior hydrolytic stability. As discussed above, one of ordinary skill in the art would not have chosen the above-quoted composition that was disclosed as inferior examples, with a reasonable expectation of success.

For at least these reasons, the combination of Shimomura and Kawahara would be improper, absent use of impermissible hindsight based on a prior reading of the present application. Accordingly, claims 1 and 3 are allowable over Shimomura and Kawahara. Claims 5 and 7, dependent from claim 3, are also allowable for at least the same reasons as claim 3.

Applicant also respectfully requests reconsideration of the 35 U.S.C. § 103(a) rejection of claims 1-4 over U.S. Patent Application No. 2002/0123436 to Osumi et al. (“Osumi”) in view of U.S. Patent No. 5,820,777 to Schnur et al. (“Schnur”).

Amended claim 1 recites, among other things, “[a] polyol ester is an ester of a diol or polyol and a fatty acid consisting of pentanoic acid, heptanoic acid, and 3,5,5-trimethylhexanoic acid.” Amended claim 2 also recites, among other things, that “each of [a] first fatty acid and [a] second fatty acid consists of pentanoic acid, heptanoic acid, and 3,5,5-trimethylhexanoic acid.”

Neither Osumi nor Schnur discloses or suggests the above-quoted features.

Both Osumi and Schnur teach using fatty acids for their respective compositions.

Neither of them, however, discloses or suggests using fatty acids consisting of the above-mentioned three fatty acids.

Regarding claims 3 and 4, the Office Action fails to respond to the Applicant's unexpected beneficial arguments presented at page 7 of the November 13, 2009 Reply. Applicant respectfully requests appropriate consideration of the unexpected beneficial argument and withdrawal of the rejection of claims 3 and 4 in a next communication.

Further to the recitation of claims 3 and 4, dependent claims 5 and 6 recite that "an amount of the phosphorus-based additive other than said phosphorothionate ranges from 0.01% to 5 %, and an amount of the glycidyl ester epoxy compound from 0.01% to 5 %" to emphasize the beneficial results shown in Tables 1, 4, and 5.

Applicant respectfully points out that the synergistic action of all three elements, a phosphorothionate, a phosphorus-based additive other than said phosphorothionate, and a glycidyl ester epoxy compound, resulted in good stability, anti-wear property, in the claimed invention. See paragraph [0142]. For instance, Example 2, in which all of the three elements are added to the composition, showed superior properties in both stability and anti-wear property, as compared to Comparative Examples 4-6, wherein only two of the three elements are added. See Tables 1 and 4. Similar beneficial results are shown in Example 5 in comparison with Comparative Examples 10-12. See Tables 1 and 4. See Tables 1 and 5.

Neither Osumi nor Schnur discloses or suggests such beneficial results from the synergistic action of a phosphorothionate, a phosphorus-based additive other than said phosphorothionate, and a glycidyl ester epoxy compound. Osumi at paragraph [0052]-

[0053] teaches using phosphorous additive, but neither discloses nor suggest using the combination of a phosphorothionate, a phosphorus-based additive other than said phosphorothionate, in addition to a glycidyl ester epoxy compound. Likewise, Schnur at col. 9, lines 29-30, discloses using phosphorous additive including a phosphorothionate, but Schnur neither discloses nor suggests using the combination of all the three elements as mentioned above. Accordingly, one of ordinary skill in the art would not have predicted such beneficial results arising from the combination of the three claimed elements.

For at least these reasons, claims 1-4 are allowable over Osumi and Schnur. Claims 5- 7, dependent from claims 3 and 4, respectively, are also allowable for at least the same reasons as claims 3 and 4.

Applicant also respectfully requests reconsideration of the 35 U.S.C. § 103(a) rejection of claims 1-4 over JP 08-209182 to Muraki et al. ("Muraki") in view of Osumi for at least the following reasons.

Muraki does not teach or suggest that "[a] polyol ester is an ester of a diol or polyol and a fatty acid consisting of pentanoic acid, heptanoic acid, and 3,5,5-trimethylhexanoic acid," as recited in amended claims 1 and 2. Further, Muraki in its English abstract teaches "0.05-2.0 mass% epoxy compound," but does not disclose or suggest "glycidyl ester epoxy compound," as claimed. Accordingly, one of ordinary skill in the art would not have predicted beneficial results from the claimed combination of three elements, a phosphorothionate, a phosphorus-based additive other than said phosphorothionate, and a glycidyl ester epoxy compound, as discussed above.

Accordingly, claims 1-4 are allowable over Muraki and Osumi. Claims 5- 7, dependent from claims 3 and 4, respectively, are also allowable for at least the same reasons as claims 3 and 4.

Each of new claims 9 and 10, by using the transitional phase "consisting of," excludes any other elements that are not expressly recited in the claims, and prevents adding additional components taught in the cited references. Accordingly, each of claims 9 and 10 excludes any other type of base oils except the recited polyol ester, or the recited mixed base oil of a tetraester of pentaerythritol and a fatty acid and a diester of neopentyl glycol and a fatty acid. Claims 9 and 10 also excludes any other type of refrigerants except the recited hydrofluorocarbons. As none of the cited references disclose or suggest claims 9 and 10, claims 9 and 10 are allowable over the cited references.


In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application, withdrawal of the rejections, and timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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By:   
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